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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,452	12/20/2005	Willem Gerard Ophrey	NL 030728	6444
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EXAMINER				
YAM, STEPHEN K				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/561,452

Applicant(s)

OPHEY, WILLEM GERARD

Examiner

STEPHEN YAM

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The references cited in the Search Report PCT/IB2004/050940 have been considered, but will not be listed on any patent resulting from this application because they were not provided on a separate list in compliance with 37 CFR 1.98(a)(1). In order to have the references printed on such resulting patent, a separate listing, preferably on a PTO/SB/08A and 08B form, must be filed within the set period for reply to this Office action.

Claim Objections

2. Claims 6 and 13 are objected to because of the following informalities:

In Claim 6, "the upper and front faces" lack proper antecedent basis.

In Claim 13, "the wafer" lacks proper antecedent basis.

3. Appropriate correction is required.

4. Claim 15 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 15 is not further limiting, as parent Claim 10 already recites a grating beam-splitter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee US 6,188,062 in view of Matsuo et al. US 6,542,447.

Regarding Claim 1, Lee teaches (see Fig. 1-6) a method of manufacturing a laser detector grating unit (LDGU) comprises: securing a laser unit (630) to each of a plurality of photodiode chips (620) (see Fig. 5), which photodiode chips form part of a photodiode wafer (510) (see Fig. 5); securing at least one grating beam-splitter strip (530) (see Col. 2, lines 64-66 and Col. 3, lines 12-14) across a plurality of said photodiode chips forming the photodiode wafer (see Fig. 5); and separating the individual laser detector grating units from each other (see Fig. 5 and Col. 2, lines 48-51), by dividing the at least one grating beam-splitter strip and separating the photodiode chips (see Fig. 5 and Col. 2, lines 48-51). Lee does not teach securing a collimator lens to each of the photodiode chips. Matsuo et al. teach (see Fig. 1) a similar device with coupling a collimator lens to a photodiode chip (39) (see Col. 4, lines 40-46). It would have been obvious to one of ordinary skill in the art at the time the invention was made to secure a collimator lens to each of the photodiode chips, as taught by Matsuo et al., in the method of Lee, to provide an improved light beam pattern to the objective lens for an optimal incident beam on the information storage medium.

Regarding Claim 2, Lee teaches the division of the at least one beam-splitter strip and the separation of the photodiode chips is done at substantially the same time (see Col. 2, lines 48-51).

Regarding Claim 3, Lee teaches the sides of individual grating beam-splitters split from the at least one grating beam-splitter strip do not require finishing after separation (since the chip is directly mounted on a lead frame and the end portions of the beam-splitter strip do not affect the operation of the device as they are not in optical contact with any light beam - see Col. 2, lines 53-55).

Regarding Claim 4, Lee teaches the grating beam-splitters transmit light through only front, rear and bottom faces (see Fig. 4).

Regarding Claim 5, Lee in view of Matsuo et al. teach the method in Claim 1, according to the appropriate paragraph above. Lee does not teach the grating beam-splitter strip is substantially cuboidal. It is well known in the art to provide various structures for a grating beam-splitter, depending on the particular desired optical properties. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the grating beam-splitter strip is substantially cuboidal, in the method of Lee in view of Matsuo et al., to provide an optimal light beam pattern for transmission.

Regarding Claim 6, Lee teaches the upper and front faces are substantially reflective (see Fig. 4-6 and Col. 3, lines 12-14).

Regarding Claim 7, Lee teaches the front face has an opening in the reflective coating of each of the grating beam-splitters to be formed from the grating beam-splitter strip (since a grating contains alternating reflective/transmissive and non-reflective/non-transmissive strips).

Regarding Claim 8, Lee in view of Matsuo et al. teach the method in Claim 1, according to the appropriate paragraph above. Lee also teaches grating structures are formed on or applied to a face of the grating beam-splitter (see Col. 3, lines 12-14). Lee does not teach the grating structures are formed on or applied to the rear face of the grating beam-splitter. It is well known in the art to provide optical components on a rear face of a reflection device (for example, a reflective coating is normally placed on the rear face of a mirror, with a transparent glass surface on the front face) in order to protect the optical component from exposure and damage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the grating structures are formed on or applied to the rear face of the grating beam-splitter, in the method of Lee in view of Matsuo et al., to protect the grating structures from exposure and damage, and since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Regarding Claim 9, Lee teaches the grating beam-splitter extends substantially across the width of the LDGU (see Fig. 2, 5).

7. Claims 10-12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. US 6,072,607.

Regarding Claim 10, Tajiri et al. teach (See Fig. 1) a laser detector grating unit (LDGU) comprises a laser (4), a photodetector section (5) and a grating beam-splitter (6), wherein the grating beam splitter has substantially reflective upper and front faces (see Fig. 1) and a grating structure on a face (see Col. 7, line 66 to Col. 8, line 2). Tajiri et al. do not teach a collimator lens or the grating structure on a rear face. It is well known in the art to provide a collimator lens

for a laser emitter and to provide optical components on a rear face of a reflection device (for example, a reflective coating is normally placed on the rear face of a mirror, with a transparent glass surface on the front face) in order to protect the optical component from exposure and damage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a collimator lens or the grating structure on a rear face, in the device of Tajiri et al., to provide an improved light beam pattern to the objective lens for an optimal incident beam on the information storage medium and to protect the grating structures from exposure and damage, and since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Regarding Claim 11, Tajiri et al. teach the device in Claim 10, according to the appropriate paragraph above. Tajiri et al. also teach a holographic grating structure (7). Tajiri et al. do not teach the holographic grating structure on a rear face of the grating beam-splitter. It is well known in the art to integrate multiple optical components into a single combined component. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the holographic grating structure on a rear face of the grating beam-splitter, in the device of Tajiri et al., to improve compactness and optical alignment of the system, and since it has been held that forming in one piece an article which has been formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Regarding Claim 12, Tajiri et al. teach the device in Claim 11, according to the appropriate paragraph above. Tajiri et al. do not teach the grating structure having a herringbone shape. It is well known in the art to provide any appropriate shape for a device, depending on

the desired operation of the device and space constraints within the system. it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the grating structure having a herringbone shape, in the device of Tajiri et al., since it has been held that changes in shape involve only routine skill in the art. *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Regarding Claim 15, Tajiri et al. teach a grating beam-splitter as claimed in claim 10.

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tajiri et al. in view of Lee.

Regarding Claim 13, Tajiri et al. teach the device in Claim 10, according to the appropriate paragraph above. Tajiri et al. do not teach the grating structure has a pitch equal to the pitch of elements of the photodetector section on the wafer. Lee teaches (see Fig. 1-6) a similar device with a grating structure (230) (see Col. 3, lines 12-14) having a pitch equal to the pitch of elements of the photodetector section on the wafer (since each chip in the wafer is identical and each grating beam-splitter is aligned with a corresponding photodetector chip). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the grating structure has a pitch equal to the pitch of elements of the photodetector section on the wafer, as taught by Lee, in the device of Tajiri et al., to provide easier mass manufacturing of the device, as taught by Lee (see Fig. 5 and Col. 2, lines 48-51).

Regarding Claim 14, Tajiri et al. teach the device in Claim 10, according to the appropriate paragraph above. Tajiri et al. do not teach the grating beam-splitter has unfinished side faces. Lee teaches (see Fig. 1-6) a similar device with a grating beam-splitter (220) having

unfinished side faces (since the chip is directly mounted on a lead frame and the end portions of the beam-splitter strip do not affect the operation of the device as they are not in optical contact with any light beam - see Col. 2, lines 53-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the grating beam-splitter has unfinished side faces, as taught by Lee, in the device of Tajiri et al., to reduce the necessary manufacturing steps and provide easier mass production of the device.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
10. Nagata et al. US 2003/0076766 and Verdiell US 6,376,268 teach similar devices with dicing optical components.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN YAM whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen Yam/
Examiner, Art Unit 2878